Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Resolvent-based Modelling, Estimation and Control of the Cylinder Wake BO JIN, RICHARD SANDBERG, SIMON ILLINGWORTH, The University of Melbourne — We use a resolvent based approach for the modelling, estimation and control of the cylinder wake at Reynolds numbers between 60 and 120. The work has three parts. First, we consider the optimal estimation problem in which a single sensor is used to estimate the whole flow field. Second, we consider full-information control in which a single actuator uses knowledge of the entire flow field for control. Third, we consider feedback control with a single sensor for measurement and a single actuator for control. A range of Reynolds numbers is considered and the trends of optimal sensor and actuator placements for estimation and control are presented.

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Date submitted: 01 Aug 2019 Electronic form version 1.4